

APPENDIX A MIDDLE GILA CANYONS AREA TRAVEL ROUTE INVENTORY

The physical access route inventory for the Middle Gila Canyons Area (MGCA) was completed in 2003 by the Recreation Solutions Enterprise Team under an interagency project undertaken with federal funds. The comprehensive inventory identified physical access routes and land use activity sites on BLM lands, National Forest lands, State Trust lands, and some private lands where access was unimpeded at the time of the field inventory. The results of the physical access inventory are summarized in the tables and maps below according to the inventory data dictionary used for the project.

The data dictionary used in the Middle Gila Canyons Travel Route Inventory¹ provides the initial definitions used for classifying the routes, and is described below. The route inventory also identified secondary characteristics and other route attributes, and numerous sites and activity areas along the travel routes, including range improvements (corrals, windmills/wells, water tanks, stock ponds, troughs) , mining activity sites (mine shafts/adits, other potential hazards), recreation sites (dispersed campsites), utilities (power lines, pipelines, communication site), rural residences, cattleguards, gates, and other features which require access or are associated with travel related activities.

1. Route Type:

Most of the routes identified in the study area and planning area were classified as tertiary unpaved roads, as defined below. A significant mileage of linear features identified in the photogrammetry step of the inventory were verified as not being used for motorized travel, and most are presumed to be reclaiming or in reclaimed/revegetated condition. A few routes were verified as being in reclaiming conditions, but useable for some types of travel (walking, horse, bike), but not passable by standard vehicle without clearing or damaging vegetation and tread repairs. Map A-1 shows the route inventory according to the inventory classifications for routes on BLM land, and the mileage summary is shown on Table A-1 below.

Table A-1: Mileage by Route Type for routes in the study area and routes on BLM land.

INVENTORY ROUTE_TYPE	MGCA STUDY AREA (MILES)	BLM (MILES)
Primary_Road_Paved	4.4	0.2
Secondary_Road_Paved	3.9	0
Secondary_Road_Unpav	26.5	4.6
Tertiary_Road_Unpav	918.2	397.6
Single_Track	2.8	0.4
Reclaiming	13.7	11.3
NM Trail	2.2	2.1
TOTAL	971.7	416.2

Note: The mileages changed slightly from the figures in the original inventory summary due to clean up performed on the GIS data.

¹ Arizona Route Inventory Data Dictionary, Arizona BLM, Arizona State Lands, Region 3 (Az Only) Forest Service, January 2003 Version.

2. Routes in Washes:

Approximately 24% of the motorized routes inventoried study area-wide were found to be in desert wash bottoms, with traffic typically running in the drainage channels. Routes in washes are mostly on sand and gravel/cobble substrate, and some are on bedrock outcrops. Most of the routes are in dry washes which flow during and after seasonal storms, and a few are in washes with perennial, or near perennial stream flow. Approximately 50% of the wash routes in the study area are on BLM lands. Approximately 28% of the motorized routes on BLM land were found to be in desert washes. Map A-2 shows the routes on BLM lands that are in desert wash bottoms (Wash). The mileage summary for routes in washes in the study area and routes on BLM lands is shown on Table A-2 below. .

Table A-2: Mileage of inventory routes in desert washes in the study area, and wash routes on BLM lands. .

WASH	MGCASTU DY AREA (MILES)	BLM (MILES)
Not a Wash	742.5	301.7
Wash	229.2	114.5
Total	971.7	416.2

Note: The mileages changed slightly from the figures in the original inventory summary due to clean up performed on the GIS data.

3. Primary Surface Type:

Nearly all of the inventoried routes are natural soil surfaced, with very few paved or gravel surfaced. The unpaved routes' surface varies according to the soil types crossed, and may include loamy soils, silts, sand, cobble and rock, gravel, and bedrock outcrop depending on location. Erosion by surface runoff is found on many routes, with gullies across the tread, and deep ditches running along the tracks in many places. The primary surface type of inventory routes on BLM land is shown on Map A-3, and the mileage summary according to the inventory classifications are shown for routes in the study area, and routes on BLM lands on table A-3 below.

Table A-3: Mileage by primary surface type (SURFACE_PR) of inventory routes in the study area, and for routes on BLM lands.

SURFACE TYPE	MGCA STUDY AREA (MILES)	BLM (MILES)
Asphalt	7.5	0.2
Bedrock	6.9	4.7
Cobbles	9.4	5.7
Gravel (Imported)	10.8	1.2
Gravel (Natural)	122.1	43.0
Gravel (Overlay)	0.5	0.0
Rock	168.7	68.5
Sand	215.9	107.0

Soil	420.7	185.8
NA	9.2	0.0
Total	971.7	416.2

Note: The mileages changed slightly from the figures in the original inventory summary due to clean up performed on the GIS data.

4. Type of Use or Traffic:

The type of use or traffic observed (OBS_USE1) on the inventory routes includes a range of motorized vehicle types and some non-motorized use. Most of the routes were found to be used by 4WD vehicle, ATV and motorcycle. Some of the routes were used by 2WD/passenger car. Most of the routes received mixed use by multiple vehicle types. The type of use found on routes on BLM land is shown on Map A-4. A mileage summary according to the type of use found on routes in the study area, and on routes on BLM land, are shown on table A-4 below.

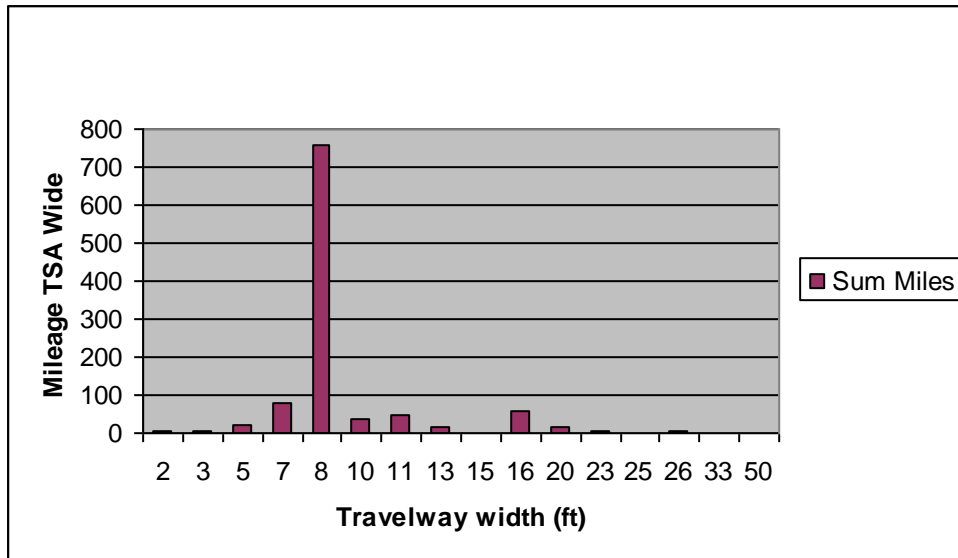
Table A4: Primary type of use or traffic observed on inventory routes in the study area and on routes on BLM lands.

OBS_USE1	MGCA MILES	BLM MILES
2WD	68.3	21.4
4WD	697.1	299.3
ATV	99.0	37.7
Equestrian	1.5	0
Motorcycle	78.3	38.4
NA	27.5	19.4
Total	971.7	416.2

5. Travel Route Width: Travelway width was identified in the physical access route inventory database. Transportation study area wide, approximately 800 miles, or most of the travel routes were single lane 8 ft. wide. About 108 miles were narrow ATV or motorcycle trails less than 7 ft., with about 30 miles of single track motorcycle trail. A few of the inventory routes were two lanes from 16 to 26 feet wide. The table and chart below indicates the range of width of inventory routes in the study area.

Table A-5. Travelway width of inventory routes in the transportation study area.

Travelway Width	Feet
Mean:	9
Maximum:	49
Minimum:	2



Based on the inventory data, the footprint of motorized travel routes inventoried is approximately 1,140 acres, of which approx. 490 acres are on BLM land.

6. Site Inventory: A variety of sites related to multiple uses on public land were identified along the physical access inventory routes, as indicated on Table A-6 below.

Table A-6. Site inventory

LABEL	STUDY AREA COUNT	BLM ONLY COUNT
Camp Site	306	127
Cattleguard	45	11
Dead End	518	226
Dumping Area	90	34
Gate	188	64
Group Camp Site	76	19
Livestock Water	94	35
Mineral Activity	150	75
OHV Play Area	6	2
Occupancy	40	19
Range Improvement	53	15
Recreation- Other	3	0
Recreation-OHV	3	0
Scenic Overlook	22	10
Shooting Area	12	4
Staging Area	64	14
Trailhead	3	1
Utility-Comm-Site	4	2
Wildlife Water	4	3

TRAVEL ROUTE INVENTORY DATA DICTIONARY

The definitions used in travel route inventory to classify travel routes and site features are described below:

Route (Line Feature)

Route_Type (Menu)

- Reclaiming [R] *Has not been used enough so that there is intact woody vegetation growing in it that would be damaged by the passage of a vehicle. Erosion and vegetation may block way, cause vehicle to get stuck and/or cause damage to vehicle. Crew should use discretion in traversing such a route.*
- Single_Track [ST] *Hiking and biking; too narrow for a truck and, most times, an ATV. Can be up to 2 meter wide, not allowing ATVs or trucks.*
- Tertiary_Road_Unpav [TRU] **default* Generally a two-track that may or may not be usable by a two-wheel drive vehicle. Generally, formal maintenance is not performed on this type of route.*
- Secondary_Road_Unpav [SRU] *Generally a regularly maintained one-lane road, with other roads of lesser quality branching from it. Connects primary roads, and major points.*
- Secondary_Road_Paved [SRP] *A paved road that is not a highway, with other roads of lesser quality branching from it. Often not striped. Connects primary roads and major points.*
- Primary_Road_Unpaved [PRU] *A regularly maintained road wide enough for at least two vehicles. Provides access between major points. Serves a large area, with many roads branching from it.*
- Primary_Road_Paved [PRP] *Major/Minor highway. Provides access between major points. Serves a large area, with many roads branching from it.*

Width (Numeric) *Range from 0.5 to 30, in meters; *default* is 2.5, the width of most Tertiary_Road_Unpaved.*

Wash (Menu) Road is a dry wash

- Wash [W] *Route is within a wash.*
- Not a Wash [NW] **default* Route is not within a wash.*

Surface-Primary (Menu) Kind of surface

- Asphalt [A] *Paved.*
- Chip Seal [CS] *Gravel material mixed with oil based substance.*
- Gravel (Imported) [GI] *Material was brought in from offsite; road bed can be raised.*
- Gravel (Natural) [GN] **default* Surface is covered with natural gravel. Common in areas of decomposed granite and desert pavement.*
- Soil [S] *The term here is used in a generic rather than technical sense. It is the native ground composed of fine particles. Includes deep dust situations.*
- Sand [Sa] *Usually in routes in drainage bottoms.*
- Cobbles [C] *Large rocks generally 6" or more in diameter. Usually in routes in drainage bottoms.*
- Rock [R] *Generally less than 6" in diameter that is rough to drive on; usually on steeper slopes on mountains.*
- Bedrock [B] *Exposed expanses of bedrock, usually due to erosion on an unmaintained route or in a drainage.*

Surface-Secondary (Menu) Kind of surface

- Asphalt [A] *Paved.*
- Chip Seal [CS] *Gravel material mixed with oil based substance.*
- Gravel (Imported) [GI] *Material was brought in from offsite; road bed can be raised.*

- Gravel (Natural) [GN] *Surface is covered with natural gravel. Common in areas of decomposed granite and desert pavement.*
- Soil [S] *The term here is used in a generic rather than technical sense. It is the native ground composed of fine particles. Includes deep dust situations.*
- Sand [Sa] *Usually in routes in drainage bottoms.*
- Cobbles [C] *Large rocks generally 6" or more in diameter. Usually in routes in drainage bottoms.*
- Rock [R] *Generally less than 6" in diameter that is rough to drive on; usually on steeper slopes on mountains.*
- Bedrock [B] *Exposed expanses of bedrock, usually due to erosion on an unmaintained route or in a drainage.*
- Dash [-] **default* Route Material in Primary category is sufficient description*

Use1 (Menu) Mandatory What's seen; not a formal designation

- Dash [-] *Undetermined.*
- 4WD [F] **default* Route is eroded and/or steep preventing two-wheel drive vehicles from using the road. Long-bed pickup trucks may run into trouble, especially crossing narrow washes.*
- 2WD [T] *All paved roads, most Secondary_Road_Unpaved routes, and a few Tertiary_Road_Unpav that are smooth enough for at least higher-clearance vehicles.*
- Motorcycle [M] *Can tell by tire tread and occasional broken accessory.*
- ATV [A] *Can tell from unique, wide tread.*
- Bicycle [B] *Can tell by narrow tire tread.*
- Hiking [H] *Single-track trails signed for hiking. Wilderness. Footprints present. Tread is often rougher than those used by ATVs, motorcycles and bicycles. Some motorized trails may also be in use by hikers.*
- Equestrian [E] *Horseback riding trails. Dung and hoofmarks often a clue.*

Use2 (Menu) Optional. (See Use1 Menu.)

- Dash - [-] **default**
- 4WD [F]
- 2WD [T]
- Motorcycle [M]
- ATV [A]
- Bicycle [B]
- Hiking [H]
- Equestrian [E]

Use3 (Menu) Optional (See Use1 Menu.)

- Dash - [-] **default**
- 4WD [F]
- 2WD [T]
- Motorcycle [M]
- ATV [A]
- Bicycle [B]
- Hiking [H]
- Equestrian [E]

Use_Level (Menu) Observed/estimated from tread condition. Please utilize the Undetermined category with careful professional consideration.

- Heavy [H] *Direct or indirect evidence of regular usage.*
- Light [L] **default* Clear evidence of infrequent usage, in light of observed environmental factors (e.g. recent precipitation).*

- Non-Existent [NE] *Generally for reclaiming roads, with rare exceptions for recently abandoned roads.*
- Undetermined [U] *Observer unable to determine use level, due to solid rock surface or environmental factors (e.g. recent precipitation). If necessary, use Comment item to note recent environmental events.*

Road_No (Text, 10 characters). *Number of highway or designated route, such as those in National Forests. Do not use lettered prefixes. Lettered suffixes are attached with no space after the number.*

Road_Name (Text, 30 characters) *Name (official or local nomenclature) of highway or designated route.*

Recorder (Text, 3 characters) *Initials of person gathering data, recorded in UPPER CASE. Consistently use same initials in all recordings.*

Comment (Text, 52 characters) *Any comment that does not fit in other parts of the Menu. Use this field for observations that pertain to past maintenance on a particular route.*

Maintenance (Menu) *Describes maintenance needed. Generally does not apply to unpaved tertiary roads and single tracks.*

- Dust_Abatement [DA]
- Shoulder Maintenance [SM]
- Stripping [ST]
- Washboard [WB]
- Grading [GR]
- Aggregate_Replace [AG]

Hazards (Point Feature)

Type (Menu)

- Erosion [E] *Road badly eroded beyond what might be expected for the road type and may be hazardous to vehicles and drivers.*
- Flash Flood Area [FF] *Normally dry drainage that can fill with rapidly flowing water as a result of nearby or upstream rain. Depth is at least 1.5 meters. Usually occurs during summer thunderstorm season. Do NOT attempt to cross/traverse during high level, rapid flow.*
- Washout [W] **default* Road is impassable or nearly so due to severe erosion. Rest of road may be completely cut off or accessible via other roads.*
- High Wall [HW] *Natural barrier of rock, usually in a drainage bottom.*
- Water_Xing [X] *Crossing a perennial stream.*
- Poor_Visibility [PV] *Due to vegetation or a tight turn around a cliff or rock.*
- Overhanging_Veg [OV] *Vegetation low enough to brush against vehicle or head, causing damage or injury.*
- Trash_Dump_No_Tire [TDN] *Areas of extensive dumping or a large item worthy of being recorded for later removal. No Tires present.*
- Trash_Dump_With_Tire [TDT] *Areas of extensive dumping or a large item worthy of being recorded for later removal. Tires are present.*
- Shooting_Area [SH] *An established shooting area with illegal dumping, littering, damaged vegetation. Occasional casings on the ground do not count.*
- Hazardous_Waste [HW] *Suspicious barrels, smells, burned material, leaking containers. Beware of methamphetamine labs. DO NOT TOUCH--LEAVE SITE AND REPORT IMMEDIATELY!*

Point Sites (Point Feature)

Type (Menu)

- Campsite [C] *An area large enough for one or two tents or one or two vehicles. One or two fire rings.*
- Trailhead [TH] *The beginning of a hiking or equestrian trail from a road; often is designated, with parking facilities.*
- Intersection [INT] **default* Not required for every junction. Use only for junctions with a suspected or definite road that will require another trip. A useful tool for the recorder.*
- Dead_End [DE] *Not required for every dead end. Use as needed when a road seems to fizzle out or hits a fence not far from another road such as a highway.*
- Scenic_Overlook [SO] *A picturesque view, often from a pass/saddle. Often where there is a dramatic change of view to reaching a ridge or saddle (the wow! factor).*
- Wildlife_Viewing [WV] *May be officially designated or an area where wildlife has been seen frequently.*
- Wildlife_Water [WW] *A developed wildlife water catchment made of a paved area funneling water to a tank and drinking facility. Usually has a fence around it and sign denoting restrictions.*
- Stock_Tank [ST] *A developed reservoir for livestock, with water resembling a pond during wet times. Usually unsigned.*
- Windmill [WM] *- Wind powered device used for pumping water out of the ground. Generally 15' or higher.*
- Corral [CL] *Enclosure for livestock, made of lumber or tree limbs; occasionally metal.*
- Spring [SP] *Water emerging from the ground or rock outcrop. Also, a seep.*
- Well [WE] *Hole dug/drilled for the purpose of pumping liquid out of the ground. Also, includes walk in wells of yesteryear (if not recorded as a cultural site).*
- Loading Ramp [LR] *Structure (usually wood) designed to herd livestock into a truck, from ground level to another level.*
- Gate_Cattleguard [GC] *One can drive across without stopping. Composed of metal or wooden (historically) parallel bars spaced so that livestock cannot cross.*
- Gate_Swing [GS] *Solid metal or wooden gate on hinges.*
- Gate_Fence [GF] *Looks like a fence and has to be dragged to open. Loop wire ties it to rest of fence. Many are of barbed wire construction ensure that tetanus shot is current.*
- Culvert [CV] *Metal tube or very small concrete tunnel under a road, allowing water to flow without damaging the road.*
- Rolling Dip [RD] *Gently rolling man made feature that is built for erosion control.*
- Water Bar [WB] *A structure in the route, composed of soil, wood or metal that allows water to drain without causing erosion. It is generally placed at an angle on the route, not perpendicular to the direction of travel.*
- Mine [M] *A pit or tunnel where ore is or has been extracted. Generally accompanied by related outbuildings and features. Can also be bat or raptor habitat. If so, note this in a point generic comment.*
- Occupancy [O] *Occupied public land; probably in a mining claim situation. Record location (if you can do it safely) and leave IMMEDIATELY.*
- Abandoned_Equipment [AE] *Other than a car. If explanation is needed, use point generic.*
- Abandoned_Building [AB] *Record here if not recorded as a cultural site.*
- Old_Car [CAR] *Abandoned cars, or major car parts, of any age.*
- Beehives [BH] *White stacked boxes. Not necessarily marked as such. You may hear buzzing. Caution africanized bees are present in the Southwest.*

Area Sites (Area Feature)

Type (Menu)

- Large_Campsite [C] **default* A large campsite where a point GPS will not do, in excess of 30 meters in diameter.*

- Staging_Area [SA] *A large area where off-road events are often based. Often created by constant use and has numerous campsites and fire rings. Perimeter likely will include small islands of intact vegetation.*
- Parking [P] *A large parking area.*
- Scenic_Overlook [SO] *A large viewpoint, usually developed.*
- Stock_Pens [S] *A large corral or series of corrals. Point reading is inadequate.*
- Mine/Gravel Pit [M] *A large pit where mineral materials are or have been extracted.*

Photo Points (Point Feature)

Subject

- Landscape **Default*: Photos will form the basis for later monitoring studies; choose sites with this in mind. Each route will be photographed at least once. Long routes (over 2 miles) should be photographed more than once.*
- Sign: *Photos will document the location and appearance of each sign encountered. Information will be used for sign management.*
- Maintenance: *Photos will document present and/or historic mechanical Maintenance/construction activity on the subject route.*
- Reclaiming: *This is useful to document one or two ends of a reclaiming (see definition in Route Menu) route.*

Photo Points (Text, 30 Characters)

A) Conventional Camera: The photo number and optional comment to make identification easier. Example format is SD-1-2 NE (Nomenclature: SD is the project, i.e. Sonoran Desert National Monument. 1 is the first roll; A2" is the second picture on the first roll. NE is any one of the 8 cardinal directions (N, NE, E, SE, S, SW, W, NW) that the camera is facing. The exact compass bearing may also be used. Please use 0 - 359 degree format for compass bearing of the camera's facing direction.

Photo boards may be needed to link photo to capture point. A natural feature such as Wickenburg Mtns makes photo identification easier, as given number may not always match number on slide or negative strip.

B) Digital Camera: Will generate their own numbers; use this number in the comment block. Digital photo files will download with this number. Therefore, use of a photo board is not necessary. Please note one of the 8 cardinal directions or exact compass bearing of the camera's facing direction.

C) Conventional/Digital: Photos are taken preferably with a scenic background that sets it apart. Occasional scenic views not showing roads are also welcome. Bear in mind that these scenic photos may be used for displays and brochures.

Cultural Site (Point Feature)

Type (Menu) Required

- Prehistoric [P] **Default* Evidence of man's past use of the land. Examples are structures, stone tools, rock art, pottery.*
- Historic [H] *Similar to prehistoric definition within the purview of written history. Examples are structures, tools of the industrial era, glass.*
- Cultural Photo Point (Text Maximum Length, 52 Characters) Required Use nomenclature described in Photo Points above.

Mine_Shaft_Adit (Point Feature)

Status (Menu)

- Open [O] **Default* Use caution. Public safety issue.*
- Closed [C] --

Point Generic (Point Feature)

These are points that do not fit neatly into the Data Dictionary attribute categories. Examples are (not limited to):

- Burro sightings (photos are acceptable)
- Desert Tortoise sightings (DO NOT pick up - photos are acceptable)
- Gila Monster sightings (DO NOT pick up or harass - you may regret it - photos are acceptable)
- Pipeline Crossing
- Fiberoptic Line Crossing
- Wetland